



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/990,741	11/21/2001	Farhad Boloorch	DP-305668	3330

7590 05/19/2004

EDMUND P. ANDERSON  
DELPHI TECHNOLOGIES, INC.  
Legal Staff, Mail Code: 480-414-420  
P.O. Box 5052  
Troy, MI 48007-5052

EXAMINER

LUM VANNUCCI, LEE SIN YEE

ART UNIT	PAPER NUMBER
----------	--------------

3611

DATE MAILED: 05/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/990,741

Applicant(s)

BOLOORCHI ET AL.

Examiner

Ms. Lee S. Lum

Art Unit

3611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-23 and 26-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6-12, 14, 15 and 26-28 is/are allowed.
- 6) ☒ Claim(s) 1-5, 13, 16, 17, 21 and 22 is/are rejected.
- 7) ☒ Claim(s) 18-20 and 23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. A Request for Reconsideration was filed 3/5/04.
2. Upon reconsideration, all 112 rejections are withdrawn. The Spec and Claims adequately describe the inventions.
3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 16 and 17** are rejected under 35 U.S.C. 102(b) as being anticipated by Bishop 5322308.

Bishop discloses an active steering system comprising  
Input device 2 communicating with differential actuator 39 (and col 10, lines 12-17),  
Steering actuator/motor 4 communicating with the differential actuator, and,  
Feel controller 12 communicating with all elements.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 3611

A. **Claims 1, 4, 5 and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lu et al 6107767 and Kyodo 5796231.

Re **Claims 1, 4 and 5**, Lu discloses a method of controlling a feedback torque of motor 28 comprising

Receiving a signal indicative of a difference between desired, and actual, motor positions (via position sensor 30, and col 5, lines 39-43),

Filtering the signal into bands (via filters 70/71), and,

Applying a gain 72 (col 6, lines 60-62) to at least one of the bands, where the gain is variable (col 6, lines 60-62).

The reference does not specify amplifying the gain "in correspondence with" at least the signal or a low-pass portion of the signal. Kyoto shows this step,

Amplifying (via amplifiers 4 and 6) the gain of band 8, in correspondence with the signal 5, where the gain is scheduled (amplifier 6 - col 4, lines 27-29).

It would have been obvious to one with ordinary skill in the art at the time the invention was made to include this step, as shown in Kyoto, to provide improved position detection (Abstract).

Re **Claim 13**, the references disclose a controller for an active steering system, the structure and means provided above.

B. **Claims 2 and 3** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lu and Kyodo, and in further view of Bishop.

The previous references do not disclose the system/method including a differential (unit), while Bishop shows this component 38-39, as an element of an active steering system. It would have been obvious to one with ordinary skill in the art at the time the invention was made to include this feature, as shown in Bishop, to provide increased accuracy in adjustment of the steering system, according to driving conditions, thus increase comfort and safety.

Art Unit: 3611

C. **Claims 21-22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Bishop in view of Bolourchi 6625530.

Bishop does not disclose the feel controller has comprising certain signal processing components, while Bolourchi shows

Low-pass filter 110,  
High-gain function 108, and,  
Low-gain function 104.

It would have been obvious to one with ordinary skill in the art at the time the invention was made to include this arrangement, as shown in Bolourchi, to provide improved stability and noise susceptibility in the circuit (col 2, lines 20-22).

5. ALLOWABLE SUBJECT MATTER

a. **Claims 6-12, 14, 15 and 26-28 are allowable.**

b. **Claims 18-20 and 23** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Prior art does not disclose a controller for an active steering system comprising, *inter alia*, a feel control algorithm comprising a filter, and at least a high-pass, or low-pass, gain, and in which the gain operate on a high-pass portion of a high-pass, or low-pass, portion of an error signal. Neither does prior art disclose such a system comprising filtering a correction signal into bands, and applying a gain to one band to produce a signal corresponding to a desired feedback torque.

6. RESPONSE TO REMARKS


Examiner has provided new rejections for some claims. Applicant is asked to note allowable subject matter.

Art Unit: 3611

7. The prior art made of record, and not relied upon, is considered pertinent to the disclosure: Najmabadi et al 6325333, Yamauchi 5973468, Mitarai et al 5736822, Gregory et al 5347204, Johnson Jr 4078749, Kaniuka 3765624.

8. Communication with the Examiner and USPTO

Any inquiry concerning this communication should be directed to Ms. Lum at (703) 305-0232, 8-6, M-F. Our fax number is (703) 872-9306. Any inquiry of a general nature, or relating to the status of this application/proceeding should be directed to Customer Assistance at (703) 306-5771.

  
LESLEY D. MORRIS  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3600

Ms. Lee S. Lum  
Examiner  
5/7/04

